

## REMARKS/ARGUMENTS

### 35 USC § 102

**Claims 9 and 11-12** were rejected under 35 USC § 102(b) as being anticipated by Hise et al. (U.S. Pat. No. 5,021,232). The applicant respectfully disagrees, especially in view of the amendments herein.

As amended herein, claim 9 expressly requires "...a ***gasification and shift unit*** coupled to a dryer..." and further requires that the dryer comprises a "...***desiccant*** that is ***coated with a carbonyl sulfide hydrolysis catalyst***...", and that the dryer is configured "...to produce a ***desiccated syngas that predominantly comprises hydrogen, carbon dioxide, carbonyl sulfide, and carbon monoxide***..." These elements are neither taught nor suggested by Hise et al.

On the contrary, Hise's dried feed gas comprises at least 65% H<sub>2</sub>S, which is contrary to the claimed subject matter and further contrary to the examiner's assertion that the desiccant of Hise would be fully capable of conversion of H<sub>2</sub>S to COS.

Moreover, the examiner also asserted that Hise would teach a distillation column that is fluidly couple to the absorber to receive the COS containing liquid CO<sub>2</sub> bottom product and to separate the COS from the CO<sub>2</sub>. Such is clearly not the case as can be taken from col.9, lines 36-47 and col. 10, lines 53-62. From these passages (and the accompanying Figures 3 and 6), it should be readily apparent that the alleged distillation column is upstream of the absorber and receives dried feed gas stream 34a.

Regarding claim 11, the examiner appears to argue that Hise teaches an autorefrigeration unit as source of liquid CO<sub>2</sub>. Such assertion is incorrect. First, the devices noted by the examiner produce solid CO<sub>2</sub>. Second, it should be noted that autorefrigeration is a term of art and refers to processes and configurations as described by Reddy in U.S. Pat. Nos. 6,301,927, 6,500,241, and 6,551,380. Clearly, such is not the case with the '232 patent.

Likewise, with respect to claim 12 the office argued that Hise's autorefrigeration unit would produce H<sub>2</sub>-containing gas. As Hise's device is not an autorefrigeration unit, the office's statement is incorrect.

Therefore, in light of the amendments and arguments provided above, the rejection of claims 9 and 11-12 is improper and should be withdrawn.

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**Claims 9-12** were also rejected under 35 USC § 102(b) as being anticipated by Adler et al. (U.S. Pat. No. 4,270,937). The applicant again respectfully disagrees, especially in view of the amendments herein.

As amended herein, claim 9 expressly requires that the dryer comprises a "...*desiccant* that is *coated with a carbonyl sulfide hydrolysis catalyst*...", and that the dryer is configured "...to produce a *desiccated syngas that predominantly comprises hydrogen, carbon dioxide, carbonyl sulfide, and carbon monoxide*..." These elements are neither taught nor suggested by Adler et al.

With respect to the desiccated feed gas it is noted that Adler (as Hise) uses cooling below the dew point to remove water that might otherwise interfere with the downstream process and conditions. However, in no way is there any teaching or suggestion to use a desiccant that would be effective to convert H<sub>2</sub>S into COS in the presence of CO<sub>2</sub> as presently claimed. Such lack of recognition is also reflected in Adler's description of the dehydrated feed gas as containing hydrogen sulfide (see *e.g.*, column 11, line 60 et seq.). Thus, the office's statement that the desiccant would have sufficient water affinity is ill supported. Moreover, it is noted that the carbonyl sulfide-containing liquid carbon dioxide bottom product is fed to a stripping column rather than a distillation column as presently claimed.

With respect to claim 11 it is noted that the examiner proposed that any one of items 40, 33, 73, 77, 79 and/or 75 could be an autorefrigeration unit. A brief review of the specification, however, will reveal that these items are a crystallizer (see Fig.1), an expander (col. 12, line 12), a pressure reducer (col. 20, line 34), a valve (col. 20, line 57), a flash tank (col. 20, line 58), and/or a stripper/absorber (col. 20, line 57), respectively. Clearly, none of these items constitute an autorefrigeration unit. Therefore, the rejection of claim 12 is also improper.

For at least these reasons and in light of the amendments, the rejection of claim 9-12 should be withdrawn.

**35 USC § 103**

**Claims 9-12** were also rejected under 35 USC § 103 as being obvious over Hise et al. in view of Adler et al. The applicant respectfully disagrees for various reasons.


Most significantly, as pointed out above, neither Hise nor Adler (alone or in combination) teach all of the elements of the amended claims. Consequently, claims 9-12 can not be properly held obvious over the cited art and the rejection should be withdrawn.

**REQUEST FOR ALLOWANCE**

Claims 1-9 and 11-21 are pending in this application, with claims 1-8 and 13-21 being withdrawn. The applicant requests allowance of all pending claims.

Respectfully submitted,

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